

General Measurement Standards and Reporting Guidelines¹

Volume and Count to Weight in Pounds Conversion Factors for Recyclables

<u>Material</u>	<u>Volume/Count</u>	<u>Weight in Pounds²</u>	<u>Source</u>
Books	one cubic yard	500	EPA NRMRL ³
Corrugated cardboard	one cubic yard	400	EPA NRMRL
Corrugated cardboard, baled	one cubic yard	1,000-1,200	NRC ⁴
Magazines	one cubic yard	500	EPA NRMRL
Mixed Paper	one cubic yard	500	EPA NRMRL
Newsprint, loose	one cubic yard	500	EPA NRMRL
Newsprint, compacted	one cubic yard	720-1,000	NRC
Newsprint	12" stack	35	NRC
Office Paper	one cubic yard	500	EPA NRMRL
Phone Books	one cubic yard	500	EPA NRMRL
Aluminum cans, whole	one cubic yard	75	EPA NRMRL
Aluminum cans, flattened	one cubic yard	250	NRC
Aluminum cans	one full grocery bag	1.5	NRC
Catalytic converter	one	14	NRC
Ferrous cans, whole	one cubic yard	150	NRC
Ferrous cans, flattened	one cubic yard	850	NRC
Refillable beer bottles	case	11.4	NRC
Glass, whole bottles	one cubic yard	600-1,000	NRC
Glass, semi crushed	one cubic yard	1,000-1,800	NRC
Glass, crushed (mechanically)	one cubic yard	800-2,700	NRC
Glass, whole bottles	one full grocery bag	16	NRC
Glass, uncrushed to manually broken	55 gallon drum	125-500	NRC
PET, soda bottles, whole, loose	one cubic yard	40	EPA NRMRL
PET, soda bottles, whole, loose	gaylord ⁵	40-53	NRC
PET, soda bottles, baled	30" x 62"	500	NRC
PET, soda bottles, granulated	gaylord	700-750	NRC
PET, soda bottles, granulated	semi-load	30,000	NRC
Film, baled	30" x 42" x 48"	1,100	NRC
Film, baled	semi-load	44,000	NRC
HDPE (dairy only), whole, loose	one cubic yard	24	NRC

¹ Disclaimer: This table is for general guidance only. Not for contract payment.

² For reporting in tons, use short tons (1 short ton = 2,000 pounds).

³ Environmental Protection Agency National Risk Management Research Laboratory (EPA NRMRL).

⁴ National Recycling Coalition (NRC).

⁵ Gaylord size most commonly used, 40" X 48" X 36."

<u>Material</u>	<u>Volume/Count</u>	<u>Weight in Pounds²</u>	<u>Source</u>
HDPE (dairy only), baled	32" X 60"	400-500	NRC
HDPE (mixed), baled	32" x 60"	900	NRC
HDPE (mixed), granulated	gaylord	800-1,000	NRC
HDPE (mixed), granulated	semi-load	42,000	NRC
Mixed Plastic	one cubic foot	50	EPA NRMRL
Mixed PET & dairy, whole, loose	one cubic yard	average 32	NRC
Mixed PET, dairy & other rigid, whole, loose	one cubic yard	average 38	NRC
Mixed rigid plastic, no film or dairy, whole, loose	one cubic yard	average 49	NRC
Mixed rigid plastic, no film, granulated	gaylord	500-1,000	NRC
Mixed rigid plastic & film, densified by mixed plastic mold technology	one cubic foot	average 60	NRC
Commingled (cans, glass & plastic)	one cubic yard	180	Mass ⁶
Commingled (cans & glass)	one cubic yard	270	Mass
Commingled residential recyclables without glass (cans, plastic & paper)	one cubic yard	260	Richland ⁷
Commingled campus recyclables (cans, glass & plastic bottles)	one cubic yard	200	Recyclemania
Commingled campus recyclables (food/beverage containers, paper, cardboard)	one cubic yard	139	Recyclemania
Commingled commercial recyclables (food/beverage containers, glass, paper, cardboard)	one cubic yard	88	CCG-1 ⁸
Commingled multifamily recyclables (food/beverage containers, glass, paper, cardboard)	one cubic yard	96	CCG-1
Commingled single family recyclables (food/beverage containers, glass, paper, cardboard)	one cubic yard	126	CCG-1
Commingled commercial recyclables without glass (food/beverage containers, paper, cardboard)	one cubic yard	155	Pierce ⁹
Food waste	one cubic yard	800	EPA NRMRL
Food waste, solid and liquid fats	55 gallon drum	412	NRC
Yard trimmings, branches	one cubic yard	350	EPA NRMRL
Yard trimmings, grass	one cubic yard	350	EPA NRMRL

⁶ California Integrated Waste Management Board, data from CalRecovery report (w/Tellus) of 1991; National Recycling Coalition, data from 1998, Information from other government sources includes OR & VA Departments of Environmental Quality, NJ Department of Environmental Protection, HI documentation as well as US Navy facility guidance documents and the US EPA.

⁷ City of Richland, Washington, recycling audits.

⁸ Developed by Cascadia Consulting Group (CCG) for King County, Washington in 2013.

⁹ Pierce County, Washington, recycling audits.

<u>Material</u>	<u>Volume/Count</u>	<u>Weight in Pounds²</u>	<u>Source</u>
Yard trimmings, leaves	one cubic yard	350	EPA NRMRL
Wood chips	one cubic yard	500	NRC
Sawdust	one cubic yard	375	Tellus Institute
Stumps & Logs	one cubic yard	1080	CCG-2 ¹⁰
Grass clippings	one cubic yard	400-1,500	NRC
Manure	one cubic yard	1628	FEECO ¹¹
Pallets	one cubic yard	185	EPA NRMRL
Pallet (single wooden)	one pallet	50	CURC ¹²
Scrap Wood	one cubic yard	300	USGBC ¹³
Concrete	one cubic yard	2850	Ecology ¹⁴
Asphalt	one cubic yard	2850	Ecology
Rubble	one cubic yard	1,400	USGBC
Composition Shingles	one cubic yard	419	CIWMB ¹⁵
Gypsum (dry)	one cubic yard	500-670	NRC
Mattress (foam rubber)	one	55	CURC
Mixed C&D debris	one cubic yard	2,000	Ecology
Battery (auto)	one	35.9	NRC
Tire – passenger car	one	20	NRC
Tire - truck, light	one	35	NRC
Tire – semi	one	105	NRC
Used motor oil	one gallon	7.4	NRC
Oil filter drum (not crushed)	one	450	Ecology
Antifreeze	gallon	8.42	NRC
Computer (CPU)	one	30	Ecology
Computer (15" monitor)	one	30	Ecology
Computer (17" monitor)	one	45	Ecology
Computer (21" monitor)	one	60	Ecology
White goods/appliances	one	150	Ecology
Fluorescent tubes (4' straight)	one	0.5	LightRecycle ¹⁶
Fluorescent tubes (8' straight)	one	1.0	LightRecycle
Fluorescent tubes (curved shapes)	one	0.25	LightRecycle
CFLs (compact fluorescent lamps)	one	0.25	LightRecycle
HIDs (high intensity discharge lamps)	one	1.5	LightRecycle

¹⁰ Developed by Cascadia Consulting Group (CCG) for a waste composition study in San Diego, California in 2000.

¹¹ "FEECO International Complete Systems and Equipment Handbook," 9th printing.

¹² College and University Recycling Council, Campus Refuse Profile, October 1997.

¹³ US Green Building Council. "LEED Reference Guide for Green Building Design and Construction 2009 Edition, Section 6-Calculations, Table 2- Solid Waste Conversion Factors. Page 360.

¹⁴ Washington Department of Ecology (Ecology), industry surveys.

¹⁵ "Conducting a Diversion Study – A Guide for California Jurisdictions," March 2001, California Integrated Solid Waste Management Board.

¹⁶ Peter Thermos, LightRecycle Washington Program Manager, 2016.